Jeanne Salchli

4th or 5th Grade

**Lesson**: Students will make a model to investigate watersheds and how they function

**Materials**:

Laptop, projector, speakers

Activity 1: pan, newspaper, plastic cover, water bottles, pictures of watersheds Activity 2: paper towel, markers, pencil shavings

**Standards**:

New York State Standards:

**PS 3.2 a,b** Water is recycled by natural processes on earth. (Precipitation, Condensation, Evaporation)

**LE 6.2c, PS 2.1c** Describe the Water Cycle. Describe and illustrate the natural processes by which water is recycled on earth (e.g., ground water, runoff).

**PS 2.1d** Describe how erosional processes (e.g., action of gravity, wind, and water) cause surface changes to the land.

**S1.2b** Develop and construct models of landforms.

New York City Science Scope and Sequence:

Grade 4, Unit 3: Properties of Water, Unit 5: Interactions of Air, Water, Land

Grade 5, Unit 2: Earth Science

**Resources**:

USDA Watershed Learning Animation: <http://www.youtube.com/watch?v=dUlAANVBYHM>

EPA: <http://water.epa.gov/type/watersheds/whatis.cfm>

**Time:** 45 minutes

**Teach**:

Ask: What is a watershed?

According to the EPA:

*A watershed is the area of land where all of the water that is under it or drains off of it goes into the same place. John Wesley Powell, scientist geographer, put it best when he said that a watershed is:*

*"that area of land, a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of a community."*

*Watersheds come in all shapes and sizes. They cross-county, state, and national boundaries. In the continental US, there are 2,110 watersheds; including Hawaii Alaska, and Puerto Rico, there are 2,267 watersheds.*

**Demo**:

Hold your hands together to form a “bowl”-this is roughly a model of a watershed.

Watch the video on watersheds. Focus question: What is a watershed, and why should you care?

**Activity**:

Students should work in cooperative groups of 4 – 5 students.

1. Crumple the paper and mold it into at least 3 mountains that will fit inside the metal container.
2. Press the plastic film onto your mountains so it fits tightly.
3. Tuck all of the edges inside the plastic bin.
4. Use the spray bottle to make it rain on your watershed. (REMEMBER, rain comes from above; 5 sprays each)
5. Write, draw and describe what you observe.

**Questions**:

* Where does the water runoff?
* Do you see streams flowing together to make rivers?
* Do you see lakes?
* How does the water flow?

**Extension: People, Pollution and Watersheds**:

1. Place paper towel on one mountain
2. Place some marker on ½ the mountain
3. Spread pencil shavings on the other ½
4. Use the spray bottle to make it rain on your watershed.
5. Write, describe and draw what you observe.

**Discussion**:

Have students turn and talk about the following questions:

* What type of pollution could the marker and pencil shavings represent?
* What happens to the pollution?
* How do humans impact the environment?
* What are some things we can do to make a positive impact?

**Assessment**:

Using a rubric, determine how successful the students are able to write their observations.